

**ST. LOUIS CITY BLOOD LEAD LEVELS AND BUILDING
DEMOLITION/REHABILITATION STUDY
TULANE UNIVERSITY SCHOOL OF PUBLIC HEALTH
MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES
DECEMBER 3, 2004**

Purpose

- To determine if building demolitions/rehabilitations in the City of St. Louis had a negative impact on children's blood lead levels.

Methodology

- Previous GIS mapping of blood lead levels and demolition/rehabilitation permit locations suggested some correlation between elevated blood lead levels and demo/rehab work.
- Requested assistance of Environmental Public Health Tracking grant partner, Tulane University Center of Excellence, for additional analysis.
- Used year 2002 data for both blood lead levels and building demo/rehab permits.
- Geocoded home of residence for children with blood lead test results and building demo/rehab permits.
- Compared lead test results prior to demo/rehab to lead test results afterwards, all test results were within one quarter-mile of demo/rehab site.

Results

- Lead test results after demo/rehab averaged about 0.5 microgram per deciliter whole blood **higher** (statistically significant, i.e. results likely not due to chance); BUT, this finding was **not** clinically important when analyzed by multi-regression test of risk factors (race of child most important factor in higher blood lead level).

Pros of Study

- Second phase of work to better identify risk factors of childhood blood lead elevations in the City.
- Demonstration of usefulness of GIS utility and capability in environmental public health activities.
- Proof (statistically) of effect of building demolition/rehabilitation on childhood blood lead levels.

Cons of study

- Retrospective study (not all risk factors known or able to be controlled for in analysis, i.e., air lead concentrations, presence/condition of lead paint in child's home, meteorological factors, child's nutritional status, child's household hobbies or occupations, etc.).

- Safe Work Practices of demo/rehab work unknown.
- Clinical importance impossible to determine without further study (i.e. prospective study).

Importance to City

- Preliminary indication that building demolition/rehabilitation work may have some effect on increasing locally exposed children's blood lead levels; will not know magnitude of effect without more study prospectively.

Prospective Study

Prospective studies are expensive undertakings, involving years of research and measuring, documenting, and modeling of various potential risk factors. The Environmental Public Health Tracking grant is not authorized, funded, or equipped to carry out a prospective study of this, or any, magnitude, as it is not an operative program but a surveillance activity. It has been estimated to cost over three million dollars to carry out a study of this kind for St. Louis City, due to the need for almost continuous air sampling, long-term surveying of the individual children involved in the blood lead testing regimen, modeling of weather factors and many other requirements of a prospective study. Funding may be available through the EPA, HUD, and/or CDC, but that would be dependant on the City's decision to apply for such funds.

What can be done NOW?

- Disseminate health information on childhood lead poisoning to residents at increased risk in the neighborhoods having demolitions/rehabilitation work.
- Enlist volunteer and civic/service clubs (Boy Scouts, Elks, Lions, CYO, church groups, etc.) to help distribute printed material door-to-door in neighborhoods of concern.
- Emphasize the positive effect of personal hygiene (hand washing) for young children, and advise restriction of outdoor play activity in the area for a limited time.
- Coordinate mobile screening efforts with Building Department's issuance of permits.
- Provide specific lead-safe information for de-construction employees (and maybe free blood lead screening, if allowable).
- Recommend Safe Work practices by construction industry in City's revitalization work, including physical restrictions around work sites and utilization of air and water curtains to control dust and airborne particles.
- Recommend safe closure of work sites via clean soil cover, grass re-seeding, landscape shrubbery, etc.